

REMARKS/ARGUMENTS

Claims 17-30 are pending in the Application. Claims 17-30 are subject to a restriction requirement between Group I, method of preparing a storage-stable aqueous dispersion (Claim 17); Group II, storage-stable aqueous dispersion (Claims 18-26) and article coated therewith (Claims 28-29); and Group III, method of using a storage-stable aqueous dispersion (Claims 27 and 30)(Office Action dated January 27, 2009). In the Restriction Response filed February 20, 2009, Applicant elected Group II, Claims 18-26 and 28-29 with traverse. Claims 17, 27, and 30 have been withdrawn from further consideration by the Examiner as directed to a non-elected invention (Office Action dated May 15, 2009 (OA), page 3).

No pending claim is presently amended.

Rejections under 35 U.S.C 102 or 103 over Wissing

Pending Claims 18-26 stand finally rejected under 35 U.S.C. 102 as described by, or under 35 U.S.C. 103 as obvious in view of, Wissing (US 2006/0003166 A1, published January 5, 2006)(OA, pp. 4-7). The pending claims are patentable over Wissing's disclosure.

Preliminarily, the Examiner has acknowledged Applicant's claim for priority under 35 U.S.C. 119 based on International Application No. PCT/EP2004/012975, filed November 16, 2004, and DE 10353953.0, filed November 18, 2003 (OA, p. 1). The filing date of Wissing's patent publication is June 22, 2005. Wissing is said to be related to Provisional Application No. 60/584,726, filed June 30, 2004. Thus, the Examiner has not explained why the subject matter Applicant claims is not entitled to benefit under 35 U.S.C. 119 of the November 18, 2003, filing date of German Application DE 10353953.0 for the full scope of the presently claimed subject matter and established that Wissing is prior art. If there is some defect in Applicant's claim under 35 U.S.C. 119, the Examiner has not mentioned it and the defect is not apparent to Applicant. Therefore, Applicant presumes that the full scope of the subject matter claimed in this Application is entitled to benefit of the November 18, 2003, filing date

of its German priority application under Section 119, that Wissing is not prior art with respect to the presently claimed subject matter, and the Examiner's rejection of Applicant's pending claims over Wissing's disclosure should be withdrawn on that basis alone.

Nevertheless, Applicant hereafter responds to the merits of the rejection or the pending claims over Wissing.

Wissing teaches [0071; emphasis added]:

The coating composition according to the invention is conventionally provided in the form of a two-pack composition. At least the binder components A) and B) which are reactive with one another must be stored separately and can only be mixed with one another just before application. The polyurethane resin can be present in the epoxy resin component A), in the polyamine-curing agent B), or in both components. Care should be taken that there is compatibility of the respective mixture, and dispersions which are stable in storage are produced. The polyurethane resin C) can be mixed with component A) or B) by mixing the respective existing aqueous dispersions, or the polyurethane resin C) is, for example, initially mixed with epoxy resin A) and the mixture then jointly converted into the aqueous phase. Of course all three components A), B) and C) can also be stored separately until they are applied.

According to Wissing [0080-0083], the process for preparing the aqueous coating compositions comprises: I. providing epoxy resin A); II. "preparing . . . polyamine curing agent B) by mixing 5-95% by weight of at least one amino functional compound . . . with 5-95% by weight of a water-dilutable (meth)acrylic copolymer . . ."; and III. "mixing the epoxy resin A) and the polyamine curing agent B) prior to application of the coating composition." The coatings exhibit fast hard-drying in a drying time of from 30 minutes to about two hours [0094]. Wissing's Example 1 shows production of the epoxy resin A) [0109], production of the polyamine curing agent both with and without polyurethane resin [0111-0119], and production of the coating compositions by mixing the A) and B) [0120-0124]. Wissing provides no example of, and does not suggest, a process which comprises adding an epoxy resin to a solvent solution of a polyurethane to form a mixture, dispersing the mixture in water to form an aqueous dispersion, and adding an amine crosslinker for the epoxy resin (1) to the aqueous dispersion. While Wissing suggests that the polyurethane resin can be present

in the epoxy resin component, in the polyamine-curing agent, or in both components prior to addition of the amine crosslinker just before the coating composition is to be applied [0071], Wissing expressly states that “[t]he polyurethane resin C) can be mixed with component A) or B) by mixing the respective existing aqueous dispersions, or the polyurethane resin C) is, for example, initially mixed with epoxy resin A) and the mixture then jointly converted into the aqueous phase” [0071]. In order to make the storage-stable aqueous dispersion Applicant alone describes and claims, the epoxy resin must be added to a solvent solution of a polyurethane resin having hydrophilic groups to form a mixture, that mixture must be dispersed in water with the optional removal of at least 90% of the solvent, and the amine crosslinker for the epoxy resin must thereafter be added to the aqueous dispersion. By the process Applicant describes and claims, which process is contrary to Wissing’s explicit instructions and teachings, Applicant teaches persons having ordinary skill in the art how to make and use an aqueous dispersion of a polyurethane, an epoxy resin, and an amine crosslinker for said epoxy resin which is storage stable for as much as two weeks (Spec., p. 17, Second Table). Wissing teaches, and would have suggested to a person having ordinary skill in the art, nothing of the kind. Wissing expressly states [0071; emphasis added], “At least the binder components A) and B) which are reactive with one another must be stored separately and can only be mixed with one another just before application.”

Thus, even assuming Wissing is prior art, and the Examiner has not explained why it is prior art, Wissing nevertheless teaches away from the process Applicant claims. Quoting from *United States v. Adams*, 383 U.S. 39, 51-52 (1966), the U.S. Supreme Court said in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, ___ (2007), “[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.”

The Examiner maintains, however, that persons having ordinary skill in the art *prima facie* would have suspected that prior art compositions having the same components as the compositions claimed are the same compositions as the compositions claimed (35 U.S.C. 102) or substantially the same compositions as the compositions claimed 35 U.S.C. 103). The Examiner appears to have disregarded a basic axiom of patent law. *In re Papesch*, 315 F.2d 381, 391 (CCPA 1963), teaches that a chemical composition and all its properties are inseparable. It is not enough for anticipation or obviousness to compare the components of the compositions and their formulas. The thing to be patented is the composition inclusive of all its properties. Wissing's compositions, which appear to include the same components as the compositions Applicant claims but are made by a distinct process, are not storage-stable. Applicant claims storage-stable compositions made by the particular process defined by Applicant's Claim 17. Applicant's Specification establishes that compositions made by the process of Claim 17 are storage-stable. To the extent compositions such as described by Wissing may have the same components but are not storage-stable, Applicant does not claim them. *In re Angstadt*, 537 F.2d 498, 504 (CCPA 1976). Based on all the evidence of record, persons having ordinary skill in the art would have understood that the compositions Applicant claims with the properties indicated are not described by, and would not have been obvious in view of, Wissing's compositions. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

A composition is fully described under 35 U.S.C. 102 or would have been obvious under 35 U.S.C. 103 if the prior art would have placed it in possession of the public. *In re Payne*, 606 F.2d 303, 314 (CCPA 1979); *In re Brown*, 329 F.2d 1006, 1011 (CCPA 1964). To that end, the prior art must describe the composition in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use the composition. *In re Hoeksema*, 399 F.2d 269, 274 (CCPA 1968). Wissing does not describe or reasonably

suggest storage-stable compositions comprising polyurethane, an epoxy resin, and an amine crosslinker for the epoxy resin and would not have enabled persons having ordinary skill in the art to make and use storage-stable compositions including those components as Applicant claims.

The Examiner's rejection should be withdrawn.

Rejections under 35 U.S.C. 103 over Miyamoto in view of Kobayashi

Claims 18-26, 28, and 29 stand rejected under 35 U.S.C. 103 over Miyamoto (U.S. Patent 5,656,701, issued August 12, 1997) in view of Kobayashi (U.S. Patent 5,662,966, issued September 2, 1997)(OA, pp. 7-10). The rejection should be withdrawn for the following reasons.

The Examiner finds that Miyamoto describes an aqueous dispersion comprising a polyurethane (A), an epoxy resin (B), and "*an optional crosslinking agent (C)*(column 9, lines 7-12)" (OA, p. 7). The Examiner states (OA, p. 8):

Miyamoto et al. contemplate the use of an additional crosslinker in their aqueous composition; however, they fail to explicitly disclose; **(18)** an amine crosslinker (C); **(19)** a non-blocked amine crosslinker (C); and **(22)** wherein said amine crosslinker (C) is a compound having at least two reactive groups.

There are good reasons why Miyamoto does not disclose an amine crosslinker for the epoxy resin. The epoxy resin is one of the crosslinkers Miyamoto contemplates. The crosslinkers Miyamoto contemplates are crosslinkers for the polyurethane component in Miyamoto's composition. The crosslinkers Miyamoto contemplates are not crosslinkers "for the epoxy resin" component of Miyamoto's composition. Miyamoto teaches (Miyamoto, col. 9, ll. 7-12; emphasis added):

Depending upon the need for other aspects of ink performance, it is possible to incorporate water-miscible solvents such as lower alcohols or alkoxypropanols (e.g., methanol, ethanol, isopropanol and methoxypropanol), as well as various additives including anti-blocking agents, defoamers and crosslinking agents other than epoxy resins.

It should be apparent from Miyamoto's reference to incorporating "crosslinking agents other than epoxy resins" that Miyamoto contemplates crosslinking agents for the polyurethane component in the composition, not for the epoxy resin component in the composition.

Miyamoto understands that the epoxy resin component is one of the possible crosslinking agents for the polyurethane component. Accordingly, when Miyamoto contemplates the addition of crosslinking agents other than epoxy resins, Miyamoto contemplates the addition of crosslinking agents other than epoxy resins for crosslinking the polyurethane component of the composition. See Miyamoto, column 9, lines 20-34 (emphasis added):

Another use of the aqueous polyurethane resin . . . is as an aqueous laminating adhesive. The aqueous polyurethane resin . . . can be immediately used as a aqueous laminating adhesive For imparting better adaptability for boiling and retorting, the aqueous polyurethane resin . . . may be used in combination with an epoxy resin that is selected from among the epoxy resins that have been listed hereinabove as crosslinking components of the aqueous printing ink composition. From the viewpoint of reactivity with epoxy resins, the polyurethane resin specified herein may preferably be selected from among those which have in the molecule a carboxyl group that is directly bonded to the aromatic ring.

Miyamoto expressly states (Miyamoto, col. 10, ll. 60-67; emphasis added):

If desired, an epoxy resin may be added as a crosslinking agent immediately before printing . . . ; in this case, a crosslinking reaction occurs between the epoxy resin and polyurethane resins after printing, whereby marked improvement is achieved

Persons having ordinary skill in the art would have learned from Miyamoto's disclosure as a whole that the crosslinking agents to which Miyamoto refers are crosslinking agents for the polyurethane component of the composition and not crosslinking agents "for the epoxy resin" as Applicant's claims require.

Moreover, Miyamoto would have taught persons having ordinary skill in the art that the polyurethane resin itself "can be stored for a prolonged time without experiencing any drop in fluidity and capability for redissolution" as long as "no crosslinking will occur either intramolecule or intermolecule" (Miyamoto, col. 10, ll. 53-59). Accordingly, with the

addition of crosslinking agents for the polyurethane component to Miyamoto's compositions, the compositions are no longer storage-stable as Applicant's claims require.

In short, there is no basis in Miyamoto for adding an amine crosslinker "for the epoxy resin" to Miyamoto's compositions because Miyamoto's epoxy resin component is itself a crosslinker for the polyurethane component in Miyamoto's laminate compositions and the addition of an amine crosslinker for the epoxy resin crosslinker would render the epoxy resin added to Miyamoto's composition useless for its intended purpose.

There is no teaching in Miyamoto to add an amine crosslinker or any other type of crosslinker "for the epoxy resin" to Miyamoto's compositions. And, Miyamoto strongly suggests that the addition of a crosslinker, regardless of its kind, to its compositions would render the compositions unsuitable for storage for any prolonged period of time.

To remedy the deficiencies of Miyamoto, the Examiner relies on the teaching of Kobayashi (OA, pp. 8-9). The Examiner cites Kobayashi's teaching at column 7, lines 7-27, particularly lines 15-16 (OA, pp. 8-9). There, Kobayashi instructs (Kobayashi, col. 7, ll. 17):

The aqueous polyurethane coating of the present invention is suitably useful for various purposes. Though applicable as it is in a one-pack fashion, this coating is preferably used as a two-pack coating with addition of a crosslinking agent so as to attain improved durability. Such agent is chosen from aqueous blocking-type polyisocyanate crosslinking agents; water-dispersible, NCO groups-nonblocking polyisocyanate crosslinking agents; melamine-based crosslinking agents; epoxy-based crosslinking agents; polyaziridine-based crosslinking agents and the like.

Immediately thereafter, Kobayashi states (Kobayashi, col. 7, ll. 17-23):

The amount of the crosslinking agent to be added depends on the quality and durability required for the purpose and use and on the kind of those agents used . . . in a weight ratio based on the solid content of the urethane polymer that predominates in the coating.

Based on aforementioned disclosures in Kobayashi, the only teaching in Kobayashi upon which the Examiner relies for a suggestion to use an amine crosslinking agent, persons having ordinary skill in the art reasonably would have understood that the crosslinking agents Kobayashi recommends for use in a two-pack coating are crosslinking agents for the urethane

polymer component and not crosslinking agents for the epoxy resin component of the Kobayashi's coating composition. The amount of the crosslinking agent in the coating is based on the content of urethane polymer in the coating, not the epoxy resin component. The crosslinking agents appear to react with active groups in the urethane polymer. The crosslinking agents may be epoxy-based. There would have been no reasonable basis for a person having ordinary skill in the art to select the only amine crosslinking agent in the designated grouping which might possibly be used "for the epoxy resin" as Applicant's claims require. To the contrary, the function of the crosslinking agent Kobayashi contemplates is entirely based on the polyurethane content in the composition and the crosslinker may itself be the epoxy resin.

Accordingly, no combination of the teachings of Miyamoto and Kobayashi reasonably would have led a person having ordinary skill in the art to use an amine crosslinker for the epoxy resin in the compositions of either Miyamoto or Kobayashi.

Moreover, Kobayashi, like Miyamoto, contemplates a two-pack coating whereby the two packs are mixed just prior to application due to their combined reactivity. The reason the two-pack coatings are used is that the coatings which contain all the active components including the crosslinker, unlike the compositions Applicant claims, are not storage stable.

No combination of the teachings of Miyamoto and Kobayashi would have taught or reasonably suggested that single-pack storage-stable aqueous dispersions including all the components of Applicant's Claims 18-26 could be made and used or that the objects of Applicant's Claims 28 and 29 could be coated with single-pack storage-stable aqueous dispersions including all the components of Applicant's Claims 18-26 with reasonable expectation of success.

To the extent the combination of Miyamoto and Kobayashi might be said to suggest a coating comprising a polyurethane, an epoxy resin, and a melamine-based crosslinking agent,

it would not have been obvious to a person having ordinary skill in the art that the composition is storage stable. The totality of the art of record suggests that the composition would not be storage-stable. Persons having ordinary skill in the art would have had no reason to suspect that storage-stable composition comprising the same components could be made and used, especially without undue experimentation. Only Applicant's disclosure would have taught persons having ordinary skill in the art how to make and use storage-stable compositions comprising a polyurethane, an epoxy resin, and an amine crosslinking agent for the epoxy resin. The presence of the same components in freshly prepared and applied prior art compositions and in Applicant's claimed storage-stable compositions would not have reasonably suggested that the compositions are the same because the prior art acknowledges that the prior art compositions have no storage-stability properties while Applicant's claimed compositions are storage-stable. The compositions, for whatever reasons, cannot be the same and reasonably would not have been considered to be the same.

The Examiner has not established an adequate factual basis for the final rejections in this case. The rejections should fairly be withdrawn.


For the reasons stated, Applicant's claims are patentable over the applied prior art and in condition for allowance. Early indication of allowability is respectfully requested.

Respectfully submitted,

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